

## CLAIMS:

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent is:

- 1 1. A user context classifier for a customer self service system that performs resource search  
2 and selection, said system including a context attribute database comprising types of user  
3 contexts and one or more context attributes associated with each user context for processing  
4 by said system, and context attribute function database comprising functions for computing  
5 values for each context attribute, said classifier comprising a mechanism for receiving a user  
6 query and a context vector comprising data associating an interaction state with said user and,  
7 processing said query and context vector against data included in said context attribute  
8 database and context attribute function database for predicting a particular user context,  
9 wherein said classifier populates said user context vector with context parameters specifying a  
10 user interaction state for use in a subsequent resource search.
- 1 2. The user context classifier for a customer self service system as claimed in Claim 1,  
2 wherein said processing mechanism includes mechanism for applying said functions to  
3 context for specifying said user interaction state, said mechanism further annotating the  
4 context vector with a set of context parameters for use in subsequent processing.
- 1 3. The user context classifier for a customer self service system as claimed in Claim 1,  
2 wherein said processing mechanism implements an inductive learning algorithm for  
3 predicting said user contexts.
- 1 4. The user context classifier for a customer self service system as claimed in Claim 1, further  
2 including mechanism for updating the attribute value functions database with more enhanced  
3 functions.

1 5. The user context classifier for a customer self service system as claimed in Claim 1,  
2 wherein said system further includes a user interaction database comprising data relating to  
3 past user queries entered into the system and associated user contexts for particular users, said  
4 mechanism for updating the attribute value functions database comprising mechanism for  
5 analyzing historical user interaction data from the user interaction database and learning how  
6 context attribute values map to context attribute functions, wherein said data from the user  
7 records database serves as a training set for continuous improvement of said functions in said  
8 attribute function database.

1 6. The user context classifier for a customer self service system as claimed in Claim 5,  
2 wherein said user interaction data includes data relating to previous system interactions, said  
3 data including user validated contexts that were applicable during said prior system  
4 interactions, and the users responses relating to those interactions.

1 7. The user context classifier for a customer self service system as claimed in Claim 6,  
2 wherein said previous system interaction data further includes prior transactions of a current  
3 user and prior transactions of other similar users, wherein common behaviors and acceptance  
4 criteria are determined for said updating said functions.

1 8. The user context classifier for a customer self service system as claimed in Claim 7,  
2 wherein similar users comprise those users with shared organization, community or  
3 environmental characteristics.

1 9. The user context classifier for a customer self service system as claimed in Claim 5,  
2 wherein said updating mechanism provides additions and modifications to a set of context  
3 attribute functions resulting in increasing ability to predict derived contexts as functions of the  
4 raw contexts.

1 10. A method for classifying user contexts for a customer self service system that performs  
2 resource search and selection, said method comprising the steps of:  
3  
4 a) receiving a user query and a context vector comprising data associating an interaction state  
5 with said user;  
6  
7 b) processing said query and context vector against data included in a context attribute  
8 database comprising types of user contexts and one or more context attributes associated with  
9 each user context for processing by said system; and  
10  
11 c) processing said query and context vector against data included in a context attribute  
12 function database comprising functions for computing values for each context attribute,  
13 wherein said processing steps b) and c) results in predicting a particular user context and  
14 populating said user context vector with context parameters specifying a user interaction state  
15 for use in a subsequent resource search.

1 11. The method as claimed in Claim 10, wherein said processing step c) further includes the  
2 step of applying said functions to context for specifying said user interaction state, said  
3 populating step including annotating the context vector with a set of context parameters for  
4 use in subsequent processing.

1 12. The method as claimed in Claim 10, wherein said processing step c) further includes the  
2 step of implementing an inductive learning algorithm for predicting said user contexts.

1 13. The method as claimed in Claim 10, further including the step of updating the attribute  
2 value functions database with more enhanced functions.

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1 14. The method as claimed in Claim 13, wherein said updating step includes the steps of:  
2  
3 analyzing historical user interaction data from a user interaction database comprising data  
4 relating to past user queries entered into the system and associated user contexts for particular  
5 users; and,  
6  
7 mapping context attribute values to context attribute functions, said data from said user  
8 records database serving as a training set for continuous improvement of said functions in said  
9 attribute function database.

1 15. The method as claimed in Claim 14, wherein said user interaction data further includes  
2 data relating to previous system interactions, said data including user validated contexts that  
3 were applicable during said prior system interactions, and the users responses relating to those  
4 interactions.

1 16. The method as claimed in Claim 15, wherein said previous system interactions includes  
2 prior transactions of a current user and prior transactions of other similar users, said functions  
3 updating step including the step of determining common behaviors and acceptance criteria  
4 from said previous system interactions.

1 17. The method as claimed in Claim 16, wherein said similar users comprise those users with  
2 shared organization, community or environmental characteristics.

1 18. The method as claimed in Claim 16, wherein said updating step includes the steps of  
2 providing additions and modifications to a set of context attribute functions resulting in  
3 increasing ability to predict derived contexts as functions of raw contexts.

1 19. A program storage device readable by machine, tangibly embodying a program of  
2 instructions executable by the machine to perform method steps for classifying user contexts

3 for a customer self service system that performs resource search and selection, said method  
4 comprising the steps of:  
5 a) receiving a user query and a context vector comprising data associating an interaction state  
6 with said user;  
7  
8 b) processing said query and context vector against data included in a context attribute  
9 database comprising types of user contexts and one or more context attributes associated with  
10 each user context for processing by said system; and  
11  
12 c) processing said query and context vector against data included in a context attribute  
13 function database comprising functions for computing values for each context attribute,  
14 wherein said processing steps b) and c) results in predicting a particular user context and  
15 populating said user context vector with context parameters specifying a user interaction state  
16 for use in a subsequent resource search.

1 20. The program storage device readable by machine as claimed in Claim 19, wherein said  
2 processing step c) further includes the step of applying said functions to context for specifying  
3 said user interaction state, said populating step including annotating the context vector with a  
4 set of context parameters for use in subsequent processing.

1 21. The program storage device readable by machine as claimed in Claim 19, wherein said  
2 processing step c) further includes the step of implementing an inductive learning algorithm  
3 for predicting said user contexts.

1 22. The program storage device readable by machine as claimed in Claim 19, further  
2 including the step of updating the attribute value functions database with more enhanced  
3 functions.

1 23. The program storage device readable by machine as claimed in Claim 22, wherein said  
2 updating step includes the steps of:  
3 analyzing historical user interaction data from a user interaction database comprising data  
4 relating to past user queries entered into the system and associated user contexts for particular  
5 users; and,  
6  
7 mapping context attribute values to context attribute functions, said data from said user  
8 records database serving as a training set for continuous improvement of said functions in said  
9 attribute function database.

1 24. The program storage device readable by machine as claimed in Claim 23, wherein said  
2 user interaction data further includes data relating to previous system interactions, said data  
3 including user validated contexts that were applicable during said prior system interactions,  
4 and the users responses relating to those interactions.